

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

#### Listing of Claims:

- Claim 1. [Currently Amended] A method for electrochemically depositing a polysaccharide having a selected physical state, onto a substrate surface, wherein said method comprises comprising:  
providing a substrate comprising said a substrate surface, said the substrate surface comprising an electrically conductive support;  
contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and  
electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state deposited onto said substrate surface.
- Claim 2. [Currently Amended] ~~A method according to~~ The method of claim 1, wherein the selected physical state comprises that of a hydrogel.
- Claim 3. [Currently Amended] ~~A method according to~~ The method of claim 2, wherein said electrochemically depositing is conducted at a current density of about 20 A/m<sup>2</sup> to about 100 A/m<sup>2</sup>.
- Claim 4. [Currently Amended] ~~A method according to~~ The method of claim 2 or 3, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.

- Claim 5. [Currently Amended] ~~A method according to any one of claims 2 to 4~~ The method of claim 4, wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.
- Claim 6. [Currently Amended] ~~A method according to any one of claims 1 to 5~~ The method of claim 1, wherein said controlling of deposition conditions comprises varying the deposition conditions during said electrochemical deposition to provide the polysaccharide mass with a hydrogel portion and a solid compact film portion.
- Claim 7. [Currently Amended] ~~A method according to~~ The method of claim 6, wherein the hydrogel portion is layered on top of the solid compact film portion.
- Claim 8. [Currently Amended] ~~A method according to any one of claims 1 to 7~~ The method of claim 1, wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a positive charge.
- Claim 9. [Currently Amended] ~~A method according to~~ The method of claim 8, wherein the ionizable group comprises ~~a member selected from~~ an alkyl amine group, a primary amine group, a secondary amine group, a tertiary amine group, a guanidinium group, an imidazole group, an indole group, a purine group, a pyrimidine group, ~~and or~~ a pyrrole group.
- Claim 10. [Currently Amended] ~~A method according to claim 8~~ The method of claim 9, wherein the ionizable group comprises a primary amine group.
- Claim 11. [Currently Amended] ~~A method according to~~ The method of claim 10, wherein the selectively insolubilizable polysaccharide comprises chitosan.

- Claim 12. **[Currently Amended]** ~~A method according to any one of claims 1 to 11~~  
The method of claim 11, further comprising treating the polysaccharide mass  
with a sufficiently basic solution to stabilize the polysaccharide mass.
- Claim 13. **[Currently Amended]** ~~A method according to any one of claims 1 to 7~~ The  
method of claim 1, wherein the selectively insolubilizable polysaccharide  
comprises an ionizable group that is ionized to provide a negative charge.
- Claim 14. **[Currently Amended]** ~~A method according to~~ The method of claim 13,  
wherein the ionizable group comprises ~~a member selected from~~ an alkoxide  
group, a carboxyl group, a hydroxy acid group, a phenolic group, a phosphate  
group, ~~and or~~ a sulfhydryl group.
- Claim 15. **[Currently Amended]** ~~A method according to~~ The method of claim 14,  
wherein the ionizable group comprises a carboxyl group.
- Claim 16. **[Currently Amended]** ~~A method according to any one of claims 1 to 7 and~~  
~~13 to 15~~ The method of claim 13, further comprising treating the  
polysaccharide mass with a sufficiently acidic solution to stabilize the  
polysaccharide mass.
- Claim 17. **[Currently Amended]** ~~A method according to any one of claims 1 to 16~~  
The method of claim 1, wherein the substrate comprises a non-conducting,  
inorganic material.
- Claim 18. **[Currently Amended]** ~~A method according to~~ The method of claim 17,  
wherein the substrate comprises silicon.
- Claim 19. **[Currently Amended]** ~~A method according to any one of claims 1 to~~ The  
method of claim 18, wherein the electrically conductive support comprises  
gold.

- Claim 20. **[Currently Amended]** ~~A method according to any one of claims 1 to 19~~  
**The method of claim 1**, wherein:  
the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and  
said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.
- Claim 21. **[Currently Amended]** ~~A method according to~~ **The method of claim 20**, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.
- Claim 22. **[Currently Amended]** ~~A method according to any one of claims 1 to 21~~  
**The method of claim 1**, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.
- Claim 23. **[Currently Amended]** ~~A method according to~~ **The method of claim 1**, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel[[],].
- Claim 24. **[Currently Amended]** A method for conjugating ~~molecules~~ **a component** to a polysaccharide mass, **said component being a biomolecular species, a cellular species or a nucleic acid molecule, wherein said method comprises comprising:**  
providing a polysaccharide mass having a selected physical state and derived from a selectively insolubilizable polysaccharide deposited on an electrically conductive support; and  
coupling ~~other molecules~~ **said component** to the polysaccharide mass.

- Claim 25. **[Currently Amended]** ~~A method according to~~ The method of claim 24, further comprising:
- providing a substrate comprising a substrate surface, the substrate surface
  - comprising an electrically conductive support;
  - contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and
  - electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form the polysaccharide mass having a selected physical state.
- Claim 26. **[Currently Amended]** ~~A method according to~~ The method of claim 25, wherein the selectively insolubilizable polysaccharide comprises chitosan, and wherein the polysaccharide mass comprises a hydrogel[[],].
- Claim 27. **[Currently Amended]** ~~A method according to~~ The method of claim 25 or 26, wherein said electrochemically depositing is conducted at a current density of about 20 A/m<sup>2</sup> to about 100 A/m<sup>2</sup>.
- Claim 28. **[Currently Amended]** ~~A method according to any one of claims 25 to 27~~ The method of claim 25, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.
- Claim 29. **[Currently Amended]** ~~A method according to any one of claims 25 to 28~~ The method of claim 25, wherein said coupling of ~~the other molecules~~ said component to the selectively insolubilizable polysaccharide is performed prior to said electrochemically depositing step.

- Claim 30. [Currently Amended] ~~A method according to any one of claims 25 to 28~~  
The method of claim 25, further wherein said coupling of ~~the other~~  
~~molecules~~ said component to the polysaccharide mass is performed after said  
electrochemically depositing step.
- Claim 31. [Currently Amended] A method according to ~~any one of claims 25 to 30~~  
claim 25, further comprising modifying the selectively insolubilizable  
polysaccharide to improve conjugatability with a reactive groups ~~of other~~  
~~molecules~~ of said component.
- Claim 32. [Currently Amended] A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said coupling comprises covalent bonding.
- Claim 33. [Currently Amended] A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said ~~other molecules~~ molecule or said cellular species  
comprises one, two, three or more enzyme species.
- Claim 34. [Currently Amended] A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said ~~other molecules~~ component comprises an one, two,  
~~three or more~~ antibody species.
- Claim 35. [Currently Amended] A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said ~~other molecules~~ component comprises a one, two,  
~~three or more~~ receptor molecule species.
- Claim 36. [Currently Amended] A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said ~~other molecules~~ component comprises a one, two,  
~~three or more~~ nucleic acid molecule species.

- Claim 37. **[Currently Amended]** A method according to ~~any one of claims 24 to 32~~  
claim 24, wherein said ~~other molecules~~ component is ~~are~~ modified to include  
a tyrosine residue[[s]].
- Claim 38. **[Currently Amended]** A method according to claim 37, wherein said  
coupling of the ~~other molecules~~ molecule or said cellular species to the  
selectively insolubilizable polysaccharide comprises a tyrosinase-catalyzed  
oxidation reaction.
- Claim 39. **[Original]** A material comprising a selectively insolubilizable polysaccharide  
hydrogel deposited on an electrically conductive support.
- Claim 40. **[Currently Amended]** ~~The A material comprising a selectively~~  
insolubilizable polysaccharide of claim 39, wherein the hydrogel is  
deposited in a spatially selective manner.
- Claim 41. **[Currently Amended]** A device comprising a material of claim 39 ~~or 40~~.
- Claim 41. **[Original]** A device according to claim 41, wherein the device comprises a  
microelectromechanical system.
- Claim 43. **[Currently Amended]** A device according to claim ~~41 or~~ 42, wherein the  
device comprises microchannels fabricated in a substrate such that electrodes  
are located within the microchannels to enable selective electrodeposition  
using fluidic flow in the microchannels.